

99.54
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no. 53



UNITED STATES DEPARTMENT OF AGRICULTURE

FOREST SERVICE

PACIFIC NORTHWEST FOREST EXPERIMENT STATION.

FOREST STATISTICS FOR UNATILLA COUNTY, OREGON

By
Wm. E. Sankela



CALIFORNIA FOREST AND RANGE
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330 GILKINSON AVENUE, BERKELEY, CALIF.

UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE
PACIFIC NORTHWEST FOREST AND RANGE EXPERIMENT STATION



ADDRESS REPLY TO
DIRECTOR
AND REFER TO

424 U. S. COURT HOUSE,
MAIN AND SIXTH STREETS,
PORTLAND, OREGON



R-NW
Forest Survey
County Statistics

July 13, 1937

Director,
California Forest Experiment Station,
332 Giannini Hall,
Berkeley, Calif.

99.54
F762P
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Dear Mr. Kotok:

Enclosed is a copy of "Forest Statistics for Umatilla County, Oregon", one of a series of mimeographed reports presenting results of the inventory phase of the forest survey in eastern Oregon and eastern Washington counties. A copy of the explanatory text, "The Forest Survey of Eastern Oregon and Eastern Washington", was mailed you with the first report of the series and should be referred to for detailed type descriptions and methods of survey procedure.

Previously forest statistics have been released for all counties in western Oregon and western Washington, for Baker, Crook, Deschutes, Harney, Jefferson, Klamath, Lake, Morrow, Wallowa, Wasco, and Wheeler Counties in eastern Oregon, and for Asotin, Chelan, Columbia, Ferry, Garfield, Kittitas, Klickitat, Okanogan, Walla Walla, and Yakima Counties in eastern Washington. Additional copies of these reports are available for distribution.

Very truly yours,

THORNTON T. MUNGER, Director

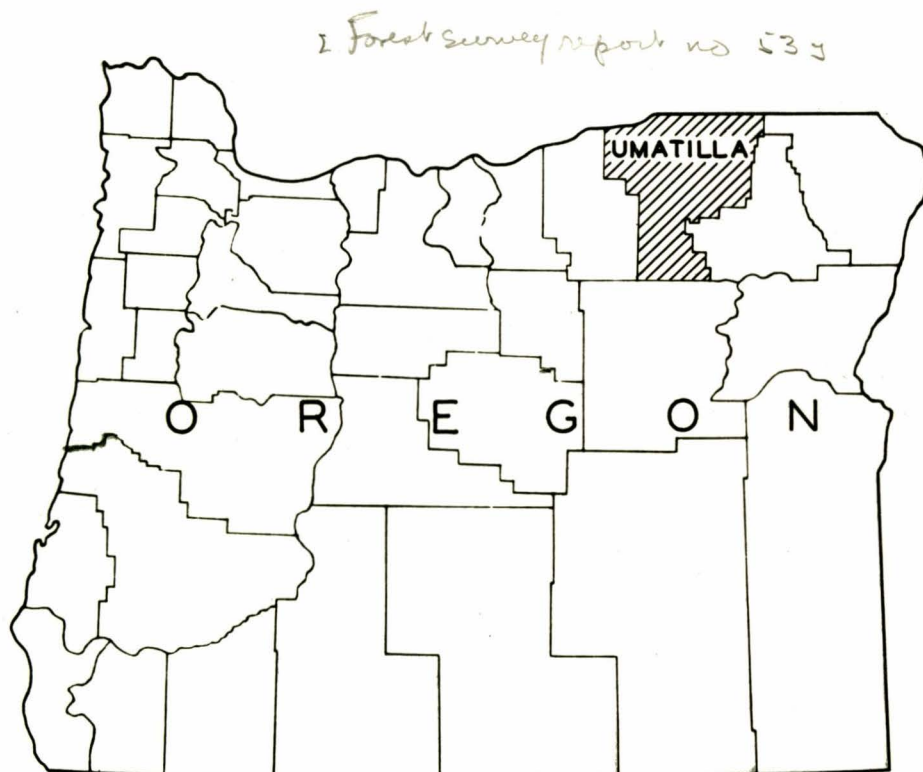
By

H. J. Andrews
Acting

Enclosure

FOREST STATISTICS FOR UMATILLA COUNTY, OREGON

FROM THE INVENTORY PHASE OF THE FOREST SURVEY



U. S. DEPARTMENT OF AGRICULTURE FOREST SERVICE
PACIFIC NORTHWEST FOREST EXPERIMENT STATION
THORNTON T. MUNGER, DIRECTOR

H. J. ANDREWS, IN CHARGE OF FOREST SURVEY R. W. COWLIN, ASSISTANT
WM. E. SANKELA, IN CHARGE OF FIELD AND OFFICE WORK
IN UMATILLA COUNTY

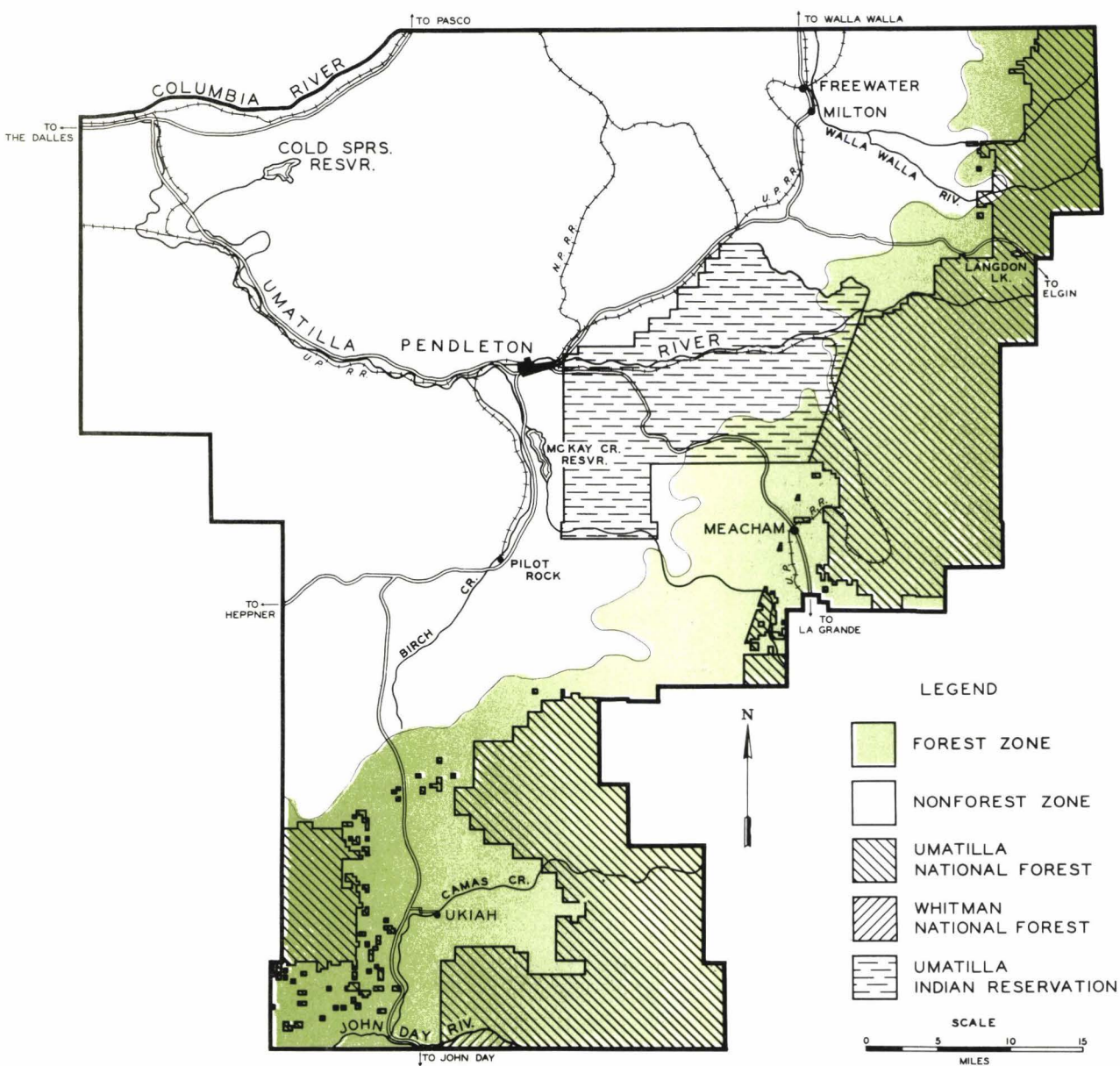
PORTLAND, OREGON

JULY 5, 1937

CALIFORNIA FOREST & RANGE EXPERIMENT STATION
330 GIANNINI HALL, UNIVERSITY OF CALIFORNIA
BERKELEY, CALIFORNIA

OF

1937



FOREST STATISTICS FOR UMATILLA COUNTY, OREGON

By Wm. E. Sankela^{1/}

This report presents some of the results of a forest survey of Umatilla County, Oregon, conducted by the Forest Service during 1936 as a part of a Nation-wide survey of forest resources. It is preliminary and deals primarily with the data obtained in the inventory phase of the survey and secondarily with the status of forest and other industries.^{2/} The methods of the survey and detailed definitions of the forest types are contained in "The Forest Survey of Eastern Oregon and Eastern Washington".^{3/}

Location and Description of County

Umatilla County, located in the northeastern quarter of Oregon, extends some 70 miles south from the Oregon-Washington boundary line and from 25 to 65 miles west from the summit of the main range of the Blue Mountains. The total area of the county is 2,049,920 acres.^{4/}

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- 1/ THE FIELD AND OFFICE WORK OF THE FOREST SURVEY OF UMATILLA COUNTY WAS DONE BY WM. E. SANKELA, D. L. LYNCH, C. S. SMITH, C. L. DE WOLFE, C. E. BROWN, A. W. HODGMAN, H. H. ARMSTRONG, B. P. BENNETT, MARION BECQUET, GRACE FREDRICKSEN, H. A. DE RICE, P. N. PRATT, R. S. STEADMAN, R. D. SPENCER, PAUL F. LINIGER, P. E. SODERBERG, B. C. BAKER, AND A. E. MOORE.
 - 2/ OREGON AND WASHINGTON WERE DIVIDED FOR PURPOSES OF THE SURVEY INTO TWO REGIONS, (1) THE DOUGLAS FIR REGION, CONSISTING OF THAT PART OF BOTH STATES WEST OF THE SUMMIT OF THE CASCADE RANGE, AND (2) EASTERN OREGON AND EASTERN WASHINGTON, THAT PART OF BOTH STATES EAST OF THE SUMMIT OF THE CASCADE RANGE. EACH REGION WAS DIVIDED INTO FOREST SURVEY UNITS COMPOSED OF ONE OR MORE COUNTIES. AT A LATER DATE A REPORT WILL BE ISSUED FOR EACH SURVEY UNIT PRESENTING A TEXTUAL DESCRIPTION OF THE UNIT, DETAILED INVENTORY SUMMARIES, AND STATISTICS OF GROWTH AND DEPLETION ANALYZED IN THE LIGHT OF THE INVENTORY. A REGIONAL REPORT WILL ALSO BE ISSUED WHICH WILL PRESENT AND DISCUSS FINDINGS FOR THE REGION AS A WHOLE. THE REGIONAL REPORT WILL INCLUDE AN INTERPRETATION OF THE FOREST SURVEY DATA AS RELATED TO OTHER ECONOMIC DATA AND A COMPREHENSIVE ANALYSIS OF THE REGIONAL FOREST SITUATION FROM BOTH A PHYSICAL AND AN ECONOMIC STANDPOINT.
 - 3/ COPIES OF "THE FOREST SURVEY OF EASTERN OREGON AND EASTERN WASHINGTON" MAY BE HAD ON REQUEST OF DIRECTOR, PACIFIC NORTHWEST FOREST EXPERIMENT STATION, 423 U. S. COURT HOUSE, PORTLAND, OREGON.
 - 4/ U. S. CENSUS REPORT FOR 1930.

On the basis of topography the county may be divided into four parts. The lowland in the northwestern part consists of a gently undulating plain which changes to rolling hills in the north-central part, sloping northwesterly to the Columbia River. The easterly part of the county is rugged and mountainous. This part is a dissected plateau which rises abruptly from the lowland and culminates in rounded summits and flat ridges. Deep steep-sided canyons cut the lower slopes. A spur of the Blue Mountains extends from east to west, roughly cutting off the southern part of the county to form the Camas Creek drainage of the North Fork of the John Day River. All of the remainder of the county, except the northeastern portion, is drained by the Umatilla River, a large stream that flows northwesterly to the Columbia River. The northeastern portion is drained by the Walla Walla River which rises in the county and flows northward into Washington.

Elevations vary from 300 feet above sea level in the lowland adjoining the Columbia River to about 7,000 feet in the extreme southeastern corner of the county on the ridge between the tributaries of Camas Creek and the North Fork of the John Day River. The average elevation along the summit of the Blue Mountains is about 5,000 feet.

Precipitation varies with elevation, being less than 10 inches annually in the lowland, increasing to over 30 inches in the Blue Mountains. The annual precipitation from 1890 to 1930 averaged 14 inches at Pendleton and 22 inches at Weston which is about 7 miles south of Milton. In the mountainous area much of the precipitation falls as snow, remaining on the ground throughout the winter.

The Vegetative Zones

The county may be divided into two principal vegetative zones: the forest comprising approximately 740,000 acres; and the nonforest, or agricultural, comprising approximately 1,310,000 acres. Within the forest zone are 150,000 acres of nonforest land. Within the nonforest zone are practically no forest lands. The forest zone is confined to the mountainous eastern and southern parts of the county as illustrated in figure 1. The nonforest zone covers the northwestern and north-central parts. The lower timber line usually ends where annual precipitation is less than 20 inches which coincides with the 3,000 feet elevation or thereabouts.

The Forest Zone

Much of the forest zone is composed of a patchwork of timber stands and open areas of grassland. The timber is found largely on the north and east slopes and in the canyons, while practically all of the ridges and dry south and west slopes are grassland.

The forest zone of the county may be divided into three natural units. North of the Umatilla River, in the area of the most rugged topography, the forests are almost entirely of upper-slope types composed of a mixture of Douglas fir, western larch, lowland white fir, lodgepole pine, and at the higher elevations some Engelmann spruce and alpine fir. A small amount of ponderosa pine is found in mixture with Douglas fir, western larch, and some lowland white fir.

South of the Umatilla River and somewhat east of Meacham lies the second natural unit. In this unit upper-slope and lowland white fir are the predominating types. Ponderosa pine types occur on larger areas here than north of the Umatilla River.

The third natural unit extends from Meacham to the extreme southern boundary of the county. Ponderosa pine is the predominant type. However, on the high ridges enclosing the Camas Creek drainage upper-slope types occur, consisting for the most part of lodgepole pine which after fires has succeeded other species of this type. Douglas fir, western larch, and lowland white fir are found in the deep canyons of the unit.

Forest Types^{5/}

The forests of Umatilla County cover 568,790 acres, and are composed of several types as set forth in tables 2 and 3 and in figure 4. The most widespread is ponderosa pine of saw-timber size which occurs on 268,245 acres or nearly one-half of the total forest land area. Treated as a group, upper-slope, Douglas fir, and lowland white fir types of saw-timber size are next, occurring on 142,900 acres or about one-fourth of the total forest. Third in area is the same species group but of less than saw-timber size which occurs on 61,330 acres or roughly one-eighth of the total forest. The remainder of the forest is made up as follows: lodgepole pine types, 48,800 acres; ponderosa pine types less than saw-timber size, 28,340 acres; noncommercial types, 16,140 acres; all other, 3,035 acres.

Most of the area occupied by ponderosa pine of saw-timber size and by lodgepole pine lies within the natural unit south and west of Meacham. The upper-slope, Douglas fir, and lowland white fir types of both saw-timber and less than saw-timber size occur principally in the two natural units north of Meacham. The lowland

^{5/} LOCATION AND EXTENT OF FOREST TYPES ARE SHOWN BY FOREST SURVEY 1-INCH-TO-THE-MILE COUNTY TYPE MAPS AND $\frac{1}{4}$ -INCH-TO-THE-MILE LITHOGRAPHED STATE TYPE MAPS. ADDRESS DIRECTOR, PACIFIC NORTHWEST FOREST EXPERIMENT STATION, 423 U. S. COURT HOUSE, PORTLAND, OREGON, FOR INFORMATION ON MANNER OF OBTAINING THEM.

white fir types in eastern Oregon and eastern Washington usually occur on areas adjacent to ponderosa pine types, but not so to any degree in Umatilla County. Here they are usually intermingled with upper-slope types. At least three-fourths of the area in ponderosa pine of less than saw-timber size lies within the south unit.

Ponderosa pine and upper-slope types of less than saw-timber size are the result of both fire and logging; 60 percent of these types resulting from the seeding in of old burns, and the remaining 40 percent coming in after cutting. A large part of the acreage now in lodgepole pine was formerly in upper-slope types which were destroyed by fire. Most of the lodgepole pine is killed by the mountain pine beetle (*Dendroctonus monticolae*) before reaching saw-timber size and then is usually succeeded by another stand of lodgepole. Transition of lodgepole types to upper-slope types has seldom been observed in this county.

Productive Capacity of Forest Land

The classification of the forest land in the county by site quality, or its ability to produce forest growth, is shown in table 4. Approximately 55 percent of the total area now supporting a coniferous forest growth of commercial importance was rated by the survey according to the ponderosa pine site classification. Ninety percent of the acreage so classified is in site quality class IV, the average pine site in eastern Oregon. The remainder of the commercial forest land was rated according to the Douglas fir site classification and practically all found to be of site quality class V, the least productive of the Douglas fir site classes.

Volume of Timber

Approximately 51 percent of the estimated total of 3,036,667 thousand board feet of timber is ponderosa pine, 18 percent Douglas fir, 15 percent lowland white fir, and 12 percent western larch. Engelmann spruce, alpine fir, lodgepole pine, and northern black cottonwood make up the remaining 4 percent. The volume of timber, by species and ownership class, is shown numerically in table 1 and graphically in figure 2.

Quality of Timber

Ponderosa pine in the south unit approaches the quality average for northeastern Oregon, being reasonably free from defect. In the two north units it is usually short and limby. Douglas fir usually is sound but of poor form, a characteristic of this species in northeastern Oregon. On the whole lowland white fir is good although occasional stands are defective. Western larch is of good quality.

Forest Ownership

Approximately 56 percent of the total forest land area in the county and 60 percent of the total saw-timber volume is in national forest ownership, 39 percent of the area and 35 percent of the volume is privately owned and the remaining 5 percent is divided between the Indian, State, county, municipal, and public domain ownerships. For a graphic presentation see figures 2 and 3. The types of saw-timber size are owned in nearly the same ratio, 57 percent of the total area of 411,230 acres being in the national forests, 37 percent in private ownership, and the remainder in the several small public ownerships. However, of the 268,245 acres of ponderosa pine types of saw-timber size approximately 49 percent is privately owned and 45 percent is in the national forests. As to the volume of ponderosa pine of saw-timber size, $47\frac{1}{2}$ percent is privately owned and another $47\frac{1}{2}$ percent is in the national forests.

Although the Umatilla Indian Reservation includes approximately 10 percent of the total area of the county the amount of forest land in Indian ownership is small. The forest land is about equally divided between the Umatilla Indian Reservation proper and a series of scattered tracts, formerly public domain but restored to Indian ownership in 1924, known as the Johnson Creek Addition to the Umatilla Indian Reservation. Tracts in this addition are too small to be shown in figure 1. Much of the Indian timber is thrifty ponderosa pine over 12 inches d.b.h., and occurs largely in stringers separated by open ridges. Timber of the best quality is found on the Johnson Creek tracts.

The State, county, municipal, and public domain forest lands are in small tracts scattered throughout the forest zone and are of minor importance.

Economic Development

Settlement of Umatilla County by whites began in the 1840's with the early migration of people from eastern United States to the Oregon Territory over the Old Oregon Trail. The first settlements were largely limited to lands adjacent to the streams in the county. Development was retarded by Indian troubles between 1840 and 1860 but thereafter a reasonably steady growth ensued.

In the main, the county is well provided with highway facilities. Paved roads radiate from Pendleton in several directions, traversing the county and connecting it with important trade centers to the east, west, north, and south outside of the county. Pendleton is an important cross roads for inter- and intra-State travel and commerce. The forested area is crossed in the north by a standard highway leading from Pendleton through Weston and past Langdon Lake

to Elgin; in the center by the historic Old Oregon Trail leading from Pendleton through Meacham to La Grande; and in the south by a State highway leading from Pendleton through Pilot Rock and by way of Camas Creek Valley to John Day. A forest road traverses the summit of the Blue Mountains throughout the county. Few branch roads serve the rugged northern part of the forest area; several serve the less rugged southern part. Numerous secondary roads exist in the open country.

Rail transportation consists of the main line of the Union Pacific Railroad, which crosses the county, two branch lines of the Union Pacific, one from Pendleton to Pilot Rock and the other from Pendleton to Walla Walla, Washington, and a branch line of the Northern Pacific that extends north from Pendleton to Wallula, Washington.

The population of Umatilla County in 1930 according to the census was 24,399 (an average of 7.6 persons per square mile) of which three-fourths was rural and one-fourth urban. Of the rural population 53 percent was classed as farm and 47 percent as non-farm. Most of the latter lived in the numerous villages and small cities of the agricultural zone. Pendleton, the largest city and trading center, contained 6,621 people. Milton and Freewater, next in rank, contained 1,576 and 732, respectively. Of the 9,488 persons 10 years old and over engaged in 1930 in gainful occupations within the county, 4,198 were employed in agriculture and the remainder in a diversity of other industries.

With a total area of approximately one and one-half million acres of open land suitable for crops and grazing, agriculture has always been the principal industry in the county. Nearly 600,000 acres are tillable and, according to the Bureau of the Census, a total of 284,789 acres was harvested in 1934, most of the remainder lying fallow. Wheat is the most important crop. As to wheat, Umatilla County ranks foremost in Oregon in acreage planted and yield per acre, producing 4,360,130 bushels on 211,185 acres in 1934, which was about one-fourth of the total acreage and one-third of the total yield in the State of Oregon for that year. In some years the production in this county has been 1 percent of the total wheat crop of the United States.

The production of agricultural crops other than wheat is very largely dependent on irrigation. In 1929 there was a total of 39,968 acres of irrigated crop land in the county. The bulk of this land is located at elevations below 1,000 feet. Three reservoirs with accompanying canals have been built on the Umatilla River or its tributaries to conserve and distribute the spring runoff of snow water from the forest zone. In the Milton and Freewater district water for irrigation is obtained from wells and from the Walla Walla River and its tributaries rising in the forest zone. Hay, prunes,

apples, cherries, and vegetables are the chief crops produced on the irrigated lands. The hay crop, largely alfalfa, is fed to livestock usually during the winter months.

The only farming area located in the forest zone is in the Camas Creek Valley, centering at Ukiah. Hay is the principal crop and is produced in connection with stock raising on local ranches.

Stock raising is second to wheat in economic importance. Approximately 900,000 acres are suitable for grazing. According to the Bureau of the Census there were 144,946 sheep, 33,648 cattle, and 10,092 horses and colts on home ranches in the county on January 1, 1935. In 1934 the sheep produced about one and one-half million pounds of wool. Summer range for a large number of sheep and cattle is obtained in the forest zone.

Flour mills and woolen textile plants located at Pendleton are important industries.

Forest Industries

The forest products of the county have been used principally for local purposes. From the beginnings of settlement to the present they have furnished building material, fuel, poles, and fence posts. Ties have been manufactured at times since the advent of railroads, and wooden boxes since the development of irrigated orchards and truck farming.

Annual lumber production during the ten-year period 1927-1936 has varied from one-half million to 13 million board feet. Four sawmills operated in 1936. Their cutting capacity was about 80 thousand board feet per 8-hour day, but one mill at Milton accounted for more than one-half of this capacity. The other mills are located as follows: one at Milton and two near Ukiah.

Most of the accessible private timber in the natural unit north of the Umatilla River has been cut. It has been removed from the upper-slope types from which Douglas fir and larch supplied the bulk. The greater part of the remaining saw timber is in the national forest and is relatively inaccessible because of the rugged terrain.

A small amount of timber has been logged in the unit south of the Umatilla River and east of Meacham. Most of the saw timber is situated in steep, narrow canyons where woods operations would be usually difficult and expensive.

In the natural unit south and west of Meacham, logging operations have been concentrated around two places, Meacham and Ukiah. Most of the saw timber has been removed from the area to the west

of the railroad near Meacham at which place ponderosa pine and upper-slope types formerly were manufactured into lumber and ties. Here the remaining saw timber is in small scattered tracts, some accessible and some not. The Meacham mill has been dismantled and the sawmill community dispersed. Logs in small quantities are now being hauled to Milton and other points for manufacture.

Around Ukiah, which is located in the Camas Creek drainage, operations have centralized in ponderosa pine stands. The greatest amount of ponderosa pine of saw-timber size within the county is located in this vicinity. Comparatively easy terrain and fair transportation facilities combine to make conditions favorable for logging. In 1936 there was only one logging operation here and it was of medium size. Most of the logs were trucked to Pilot Rock whence they were shipped by rail to the mill at Milton. The timber in this drainage is readily accessible to the operations of a large logging company in Union County and much of it probably will be taken out easterly to La Grande. Some of the timber in the westerly part of the unit could be included with that in southeastern Morrow and northwestern Grant Counties to form an operating unit.

Other Forest Uses

In addition to the utilization of timber, many uses are being made of the forests of the county. One of the most important is the grazing of cattle and sheep during the summer months. Another is recreational. A resort and many summer homes have been built at Langdon Lake. Mineral springs have been developed at three places, Bingham, Lehman, and Hidaway. Deer and elk are quite plentiful in some of the more remote mountainous areas and attract a large number of sportsmen each fall.

The forest cover is of signal importance in the control of the streams within the county, all of which rise in the forest zone. Pendleton, the smaller towns in the county, the city of Walla Walla in Washington, and the irrigation districts depend upon them for their water supply. Hydro-electric power has been generated locally.

The forests, although subordinate to agriculture in value of products, have played a vital part in the economic welfare of the county and under proper management should continue to do so.

FOREST STATISTICS FOR UMATILLA COUNTY, OREGON
FROM INVENTORY PHASE OF FOREST SURVEY

TABLE 1. VOLUME OF TIMBER BY SPECIES AND OWNERSHIP CLASS
DATA CORRECTED TO JANUARY 1, 1937

TREES 12" AND MORE IN D.B.H.
THOUSANDS OF BOARD FEET, LOG SCALE, SCRIBNER RULE

SUR- VEY SYM- BOL :	SPECIES ^{1/}	PRIVATE	STATE, AVAILABLE FOR CUTTING	COUNTY	MUNICIPAL	INDIAN, TRIBAL AND TRUST ALLOTMENT	FEDERAL		TOTAL
							PUBLIC DOMAIN	NATIONAL FOREST, AVAILABLE FOR CUTTING	
Y :	PONDEROSA PINE	734,165 :	1,915 :	12,914 :	100 :	54,736 :	10,904 :	731,836 :	1,546,570
LP :	LOGSPOLE PINE	1,997 :	:	:	:	328 :	:	13,093 :	15,418
DF :	DOUGLAS FIR	141,974 :	1,014 :	2,728 :	1,552 :	16,917 :	3,348 :	388,788 :	556,321
WF :	LOWLAND WHITE FIR	104,963 :	1,255 :	2,326 :	1,515 :	5,697 :	1,924 :	327,348 :	445,028
AF :	ALPINE FIR	1,147 :	:	:	665 :	:	:	27,992 :	29,804
WL :	WESTERN LARCH	75,759 :	619 :	2,885 :	337 :	5,346 :	2,569 :	263,924 :	351,439
ES :	ENGELMANN SPRUCE	21,930 :	320 :	58 :	739 :	176 :	277 :	62,489 :	85,989
BC ^{2/} :	NORTHERN BLACK COTTONWOOD	3,932 :	:	:	:	2,035 :	21 :	110 :	6,098
TOTAL		1,085,867 :	5,123 :	20,911 :	4,908 :	85,235 :	19,043 :	1,815,580 :	3,036,667

^{1/} SPECIES NOT LISTED HERE THAT OCCUR IN THE COUNTY, BUT IN NEGLIGIBLE QUANTITIES, ARE WESTERN WHITE PINE, ALDER, ASPEN, AND BIRCH.

^{2/} ADDITIONAL VOLUMES THAT WERE DETERMINED IN CORDS: (A) NORTHERN BLACK COTTONWOOD 2,740 CORDS, (B) WESTERN JUNIPER 35 CORDS.

FOREST STATISTICS FOR UMATILLA COUNTY, OREGON
FROM INVENTORY PHASE OF FOREST SURVEY

TABLE 2. AREA, IN ACRES, OF ALL FOREST COVER TYPES, BY OWNERSHIP CLASS
DATA CORRECTED TO JANUARY 1, 1937

SUR- VEY TYPE NO.	TYPE DEFINITION	PRIVATE	STATE,	COUNTY	MUNICIPAL	INDIAN,	FEDERAL			TOTAL
			AVAILABLE			TRIBAL AND	PUBLIC	NATIONAL FOREST		
			FOR CUTTING			TRUST ALLOTMENTS	DOMAIN	AVAILABLE FOR CUTTING	RESERVED FROM CUTTING	
WOODLAND:										
58	SCATTERED JUNIPER: JUNIPER FORESTS OCCUPYING 5 TO 10% OF THE LAND AREA							105		105
5 1/2	PONDEROSA PINE WOODLAND: SCATTERED STANDS OF MATURE PONDEROSA PINE ON UNFAVORABLE SITES	2,795		125		30	425	1,420		4,795
	PONDEROSA PINE: FORESTS CONTAINING 50% OR MORE OF PONDEROSA PINE									
20	PONDEROSA PINE, LARGE: FORESTS CONTAINING 50 TO 80% OF PONDEROSA PINE, MORE THAN 22" DBH	23,410	205	215		3,450	340	34,920		62,540
20.5	PURE PONDEROSA PINE, LARGE: FORESTS CONTAINING 80% OR MORE OF PONDEROSA PINE, MORE THAN 22" DBH	67,005	185	1,700		5,000	1,170	52,680		127,740
21	PONDEROSA PINE, SMALL: 12 TO 22" DBH	22,350	20	45		1,260	20	11,555		35,250
22	PONDEROSA PINE SEEDLINGS, SAPLINGS, AND POLES: LESS THAN 12" DBH	7,190	20	15		1,160	20	3,215		11,620
	PINE MIXTURE: MIXED FORESTS CONTAINING 20 TO 50% OF PONDEROSA PINE									
27	PINE MIXTURE, LARGE: 12" OR MORE DBH	14,545	60	45	25	2,470	265	20,510		37,920
28	PINE MIXTURE, SMALL: LESS THAN 12" DBH	13,370	230			1,115	75	1,930		16,720
	DOUGLAS FIR: FORESTS CONTAINING 60% OR MORE OF DOUGLAS FIR									
8	DOUGLAS FIR, LARGE SECOND GROWTH: 22 TO 40" DBH	110					5	2,195		2,310
9A	DOUGLAS FIR, LARGE POLES: 12 TO 20" DBH	965				100		4,970		6,035
9B	DOUGLAS FIR, SMALL POLES: 6 TO 10" DBH	2,635				25	100	3,405		6,165
10	DOUGLAS FIR, SEEDLINGS AND SAPLINGS: LESS THAN 6" DBH	915				295		285		1,495
	UPPER-SLOPE MIXTURE: MIXED FORESTS OF WESTERN LARCH, DOUGLAS FIR, ENGELMANN SPRUCE, LOWLAND WHITE FIR, ALPINE FIR, OR LODGEPOLE PINE; OCCASIONALLY OTHER SPECIES									
27 1/2	UPPER-SLOPE MIXTURE, LARGE: 12" OR MORE DBH	14,135	235	855	530	510	680	82,840		99,785
28 1/2	UPPER-SLOPE MIXTURE, SMALL: LESS THAN 12" DBH	26,655	75	95	185	215	195	25,570	40	53,030
	LOWLAND WHITE FIR: FORESTS CONTAINING 50% OR MORE OF LOWLAND WHITE FIR									
29	LOWLAND WHITE FIR, LARGE: 12" OR MORE DBH	9,195	160	230			170	25,015		34,770
30	LOWLAND WHITE FIR, SMALL: LESS THAN 12" DBH	205						435		640
	LODGEPOLE PINE: FORESTS CONTAINING 50% OR MORE OF LODGEPOLE PINE									
25	LODGEPOLE PINE, LARGE: 12" OR MORE DBH	50						35		85
26	LODGEPOLE PINE, MEDIUM: 6 TO 10" DBH	3,370		25		470	100	13,375	15	17,355
26A	LODGEPOLE PINE, SMALL: LESS THAN 6" DBH	5,715	125	45		150	270	25,055		31,360
	HARDWOOD: FORESTS CONTAINING 50% OR MORE OF NORTHERN BLACK COTTONWOOD OR ASPEN									
31.5	HARDWOOD, LARGE: 12" OR MORE DBH	1,020				610	15	10		1,655
31	HARDWOOD, SMALL: LESS THAN 12" DBH	15								15
33	SUBALPINE: FORESTS AT UPPER LIMITS OF TREE GROWTH, USUALLY UNMERCHANTABLE							1,200		1,200
	NONRESTOCKED CUTOVERS: LOGGED AREAS NOT SATISFACTORILY RESTOCKED AND NOT CARRYING A RESIDUAL STAND OF 1 M OR MORE PER ACRE									
35A	CUT SINCE BEGINNING OF 1920	520				5				525
35B	CUT BEFORE 1920	375								375
	DEFORESTED AREAS: NONRESTOCKED AREAS DEFORESTED OTHERWISE THAN BY CUTTING									
37	DEFORESTED BURNS	50						310		360
38	NONCOMMERCIAL ROCKY AREAS	3,235	15	300	120	345	95	10,830		14,940
TOTALS FOR FOREST LAND		219,830	1,330	3,695	860	17,210	3,945	321,865	55	568,790
1 & 2: NONFOREST LAND: CULTIVATED, GRASS, SAGEBRUSH, BARRENS, CITIES, UNMEANDERED WATER SURFACES, ETC.		1,404,965 ACRES OF NONFOREST LAND UNCLASSIFIED BY OWNERSHIP						76,150	15	1,481,130
TOTALS FOR COUNTY								398,015	70	2,049,920

1/ THE TOTAL AREA OF THE COUNTY ACCORDING TO THE BUREAU OF THE CENSUS IS 2,049,920 ACRES. OF THIS TOTAL, 725,225 ACRES WAS CLASSIFIED AS TO OWNERSHIP BY THE FOREST SURVEY.

FOREST STATISTICS FOR UMATILLA COUNTY, OREGON
FROM INVENTORY PHASE OF FOREST SURVEY

TABLE 3. AREA, IN ACRES, OF GENERALIZED FOREST TYPES, BY OWNERSHIP CLASS
DATA CORRECTED TO JANUARY 1, 1937

TYPE DEFINITION	FEDERAL								TOTAL	
	PRIVATE	STATE,	COUNTY	MUNICIPAL	INDIAN,	PUBLIC	NATIONAL FOREST			
		AVAILABLE			TRIBAL AND:		AVAILABLE	RESERVED		
		FOR CUTTING			TRUST ALLOTMENTS:		FOR CUTTING	FROM CUTTING		
WOODLAND: JUNIPER										
SURVEY TYPE 5B							105		105	
HARDWOODS: COTTONWOOD AND ASPEN										
SURVEY TYPES 31 AND 31.5	1,035				610	15	10		1,670	
PONDEROSA PINE 12" OR MORE DBH										
SURVEY TYPES 5½, 20, 20.5, 21, AND 27	130,105	470	2,130	25	12,210	2,220	121,085		268,245	
PONDEROSA PINE LESS THAN 12" DBH	ON CUTOVER AREAS	12,620	230		1,250	80	425		14,605	
SURVEY TYPES 22 AND 28	ON OLD BURNS	7,940	20	15	1,025	15	4,720		13,735	
	TOTAL	20,560	250	15	2,275	95	5,145		28,340	
CONIFERS 12" OR MORE DBH OTHER THAN PONDEROSA										
PINE AND LODGEPOLE PINE										
SURVEY TYPES 8, 9A, 27½, AND 29		24,405	395	1,085	530	610	855	115,020	142,900	
CONIFERS LESS THAN 12" DBH OTHER THAN PONDEROSA PINE	ON CUTOVER AREAS	20,890	50	75		60	195	185	21,455	
AND LODGEPOLE PINE	ON OLD BURNS	9,520	25	20	185	475	100	29,510	39,875	
SURVEY TYPES 9B, 10, 28½, AND 30	TOTAL	30,410	75	95	185	535	295	29,695	61,330	
LODGEPOLE PINE 12" OR MORE DBH										
SURVEY TYPE 25		50					35		85	
LODGEPOLE PINE LESS THAN 12" DBH										
SURVEY TYPES 26 AND 26A		9,085	125	70		620	370	38,430	48,715	
NONCOMMERCIAL AREAS										
SURVEY TYPES 33 AND 38		3,235	15	300	120	345	95	12,030	16,140	
NONRESTOCKED CUTOVER AREAS AND DEFORESTED BURNS										
SURVEY TYPES 35A, 35B, AND 37		945				5		310	1,260	
TOTALS FOR FOREST LAND		219,830	1,330	3,695	860	17,210	3,945	321,865	558,790	
NONFOREST LAND										
SURVEY TYPES 1 AND 2		1,404,965 ACRES OF NONFOREST LAND UNCLASSIFIED BY OWNERSHIP						76,150	15	1,481,130
TOTALS FOR COUNTY								398,015	70	1,481,920

1/ THE TOTAL AREA OF THE COUNTY, ACCORDING TO THE BUREAU OF THE CENSUS, IS 2,049,920 ACRES. OF THIS TOTAL, 725,225 ACRES WAS CLASSIFIED AS TO OWNERSHIP BY THE FOREST SURVEY.

FOREST STATISTICS FOR UMATILLA COUNTY, OREGON
FROM INVENTORY PHASE OF FOREST SURVEY

TABLE 4. AREA OF FOREST LAND, BY SITE QUALITY
DATA CORRECTED TO JANUARY 1, 1937

TYPE	SITE QUALITY CLASS ^{1/}	ACRES	AREA			
			PERCENTAGE OF--			
			CONIFEROUS	FOREST LAND	TOTAL	TOTAL
			CLASSIFIED	AS TO SITE	FOREST ^{2/}	AREA OF
			QUALITY		LAND ^{2/}	COUNTY
PONDEROSA PINE AND PONDEROSA PINE MIXTURE	PONDEROSA PINE	III	5,140	1.0	0.9	0.3
		IV	261,290	48.1	46.0	12.7
		V	30,640	5.6	5.4	1.5
		VI	125			
DOUGLAS FIR, UPPER- SLOPE MIXTURE, AND LOWLAND WHITE FIR	DOUGLAS FIR		297,195	54.7	52.3	14.5
		IV	12,300	2.3	2.1	0.6
		V	233,745	43.0	41.1	11.4
			246,045	45.3	43.2	12.0
TOTAL			543,240	100.0	95.5	26.5
NONCOMMERCIAL ROCKY AREAS			14,940		2.6	0.7
LODGEPOLE PINE			3/ 7,635		1.4	0.4
HARDWOOD			1,670		0.3	0.1
SUBALPINE			1,200		0.2	
JUNIPER			105			
TOTAL			25,550		4.5	1.2
GRAND TOTAL			568,790		100.0	27.7

1/ THE "SITE QUALITY" OF A FOREST AREA IS ITS RELATIVE PRODUCTIVE CAPACITY, DETERMINED BY CLIMATIC, SOIL, TOPOGRAPHIC, AND OTHER FACTORS. THE INDEX OF SITE QUALITY IS THE AVERAGE HEIGHT OF THE DOMINANT STAND AT THE AGE OF 100 YEARS. SIX SITE QUALITY CLASSES ARE RECOGNIZED FOR PONDEROSA PINE AND FIVE FOR DOUGLAS FIR, CLASS I BEING IN EACH CASE THE HIGHEST. IN THE SURVEY THE PONDEROSA PINE AND DOUGLAS FIR CLASSIFICATIONS, RESPECTIVELY, WERE USED NOT ONLY FOR TYPES OF WHICH THESE SPECIES ARE CHARACTERISTIC COMPONENTS BUT FOR OTHER TYPES FOR WHICH NO SITE QUALITY CLASSIFICATIONS HAVE BEEN DEVELOPED.

2/ THE TOTAL AREA OF THE COUNTY (ACCORDING TO THE BUREAU OF THE CENSUS REPORT FOR 1930) IS 2,049,920 ACRES. OF THIS TOTAL, ACCORDING TO FOREST SURVEY DATA, 568,790 ACRES (27.7 PERCENT) IS FOREST LAND AND 1,481,130 ACRES (72.3 PERCENT) IS NONFOREST LAND.

3/ EXCLUSIVE OF 41,165 ACRES OF LODGEPOLE PINE TYPE WHICH WAS INCLUDED IN THE DOUGLAS FIR SITE.

FOREST STATISTICS FOR UMATILLA COUNTY, OREGON

FROM INVENTORY PHASE OF FOREST SURVEY

FIGURE 2. DISTRIBUTION OF SAW-TIMBER VOLUME BY SPECIES AND OWNERSHIP CLASS (FROM TABLE 1)

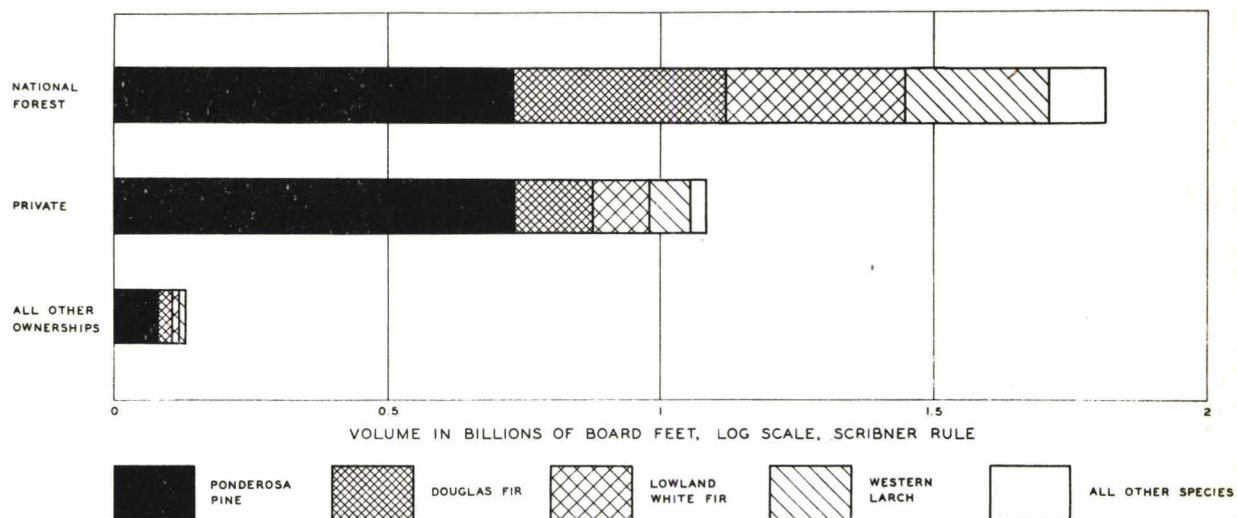


FIGURE 3. OWNERSHIP OF FOREST LAND (FROM TABLE 2)

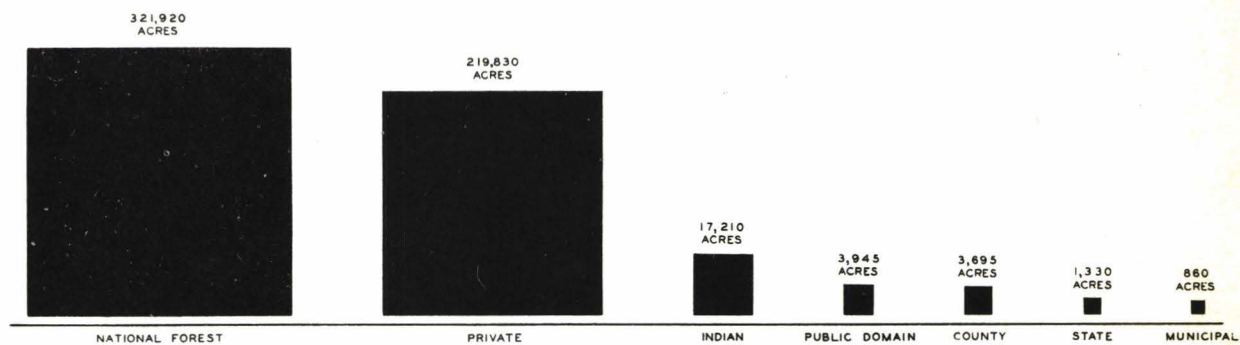


FIGURE 4. DISTRIBUTION OF FOREST LAND BY GENERALIZED TYPES, ALL OWNERSHIP CLASSES (FROM TABLE 3)

